UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

DIGITAL MARINE GRAVITY DATA COLLECTED IN THE SOUTHERN CHUKCHI SEA IN 1976

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.
Any use of trade names is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey

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The U.S. Geological Survey (USGS) collected approximately 570 km of digital marine gravity data in 1976 over the continental shelf of the southern Chukchi Sea (Hope basin) (Figs. 1 and 2). The data were collected aboard the USGS research vessel S. P. Lee (cruise number L676AR). These data have been included in a free-air gravity anomaly map of the United States Beaufort and Chukchi Seas (May, 1985). Geology of the Hope basin is discussed in Eittreim and others (1979) and Grantz and May (1984).

Data were recorded at 20 second intervals using La Coste and Romberg sea gravimeter S-53 mounted on a two-axis inertial platform (La Coste and others, 1967). Navigation of the survey was by satellite fixes integrated with bottom-tracking doppler sonar. Final smoothed navigation was used to make Eotvos corrections and final free-air anomaly values were determined from the 1967 reference ellipsoid (International Association of Geodesy, 1971).

Digital data available from this survey are gravity and navigation at one minute (100 to 300 meter) intervals. Copies of the data are available through the National Geophysical Data Center, NOAA/EDIS/NGDC, Code 64, 325 Broadway, Boulder, CO 80303; telephone (303) 497-6338.

References

Eittreim, Stephen, Grantz, Arthur, and Whitney, O. T., 1979, Cenozoic sedimentation and tectonics of Hope basin, southern Chukchi Sea, in Sisson, A., editor, The relationship of plate tectonics to Alaskan geology and resources: Alaska Geological Society Symposium, 6th, Anchorage 1977, p. B1-B11.

Grantz, Arthur, and May, S. D., 1984, Summary geologic report for Barrow arch planning area, Chukchi Sea, Alaska: U.S. Geological Survey Open-File Report 84-395, 40 p., 16 figs.

International Association of Geodesy, 1971, Geodetic reference system, 1967: Paris Bureau Central de l'Association Internationale de Geodesie Special Publication 3, 116 p.

La Coste, L. J. B., Clarkson, Neal, and Hamilton, George, 1967, La Coste and Romberg stabilized platform shipboard gravity meter: Geophysics, v. 32, no. 1, p. 99-109.

May, S. D., 1985, Free-air gravity anomaly map of the Chukchi and Beaufort seas, Arctic Ocean: U.S. Geological Survey Miscellaneous Investigations Series Map I-1182-E, 1 sheet, scale 1:1,000,000.

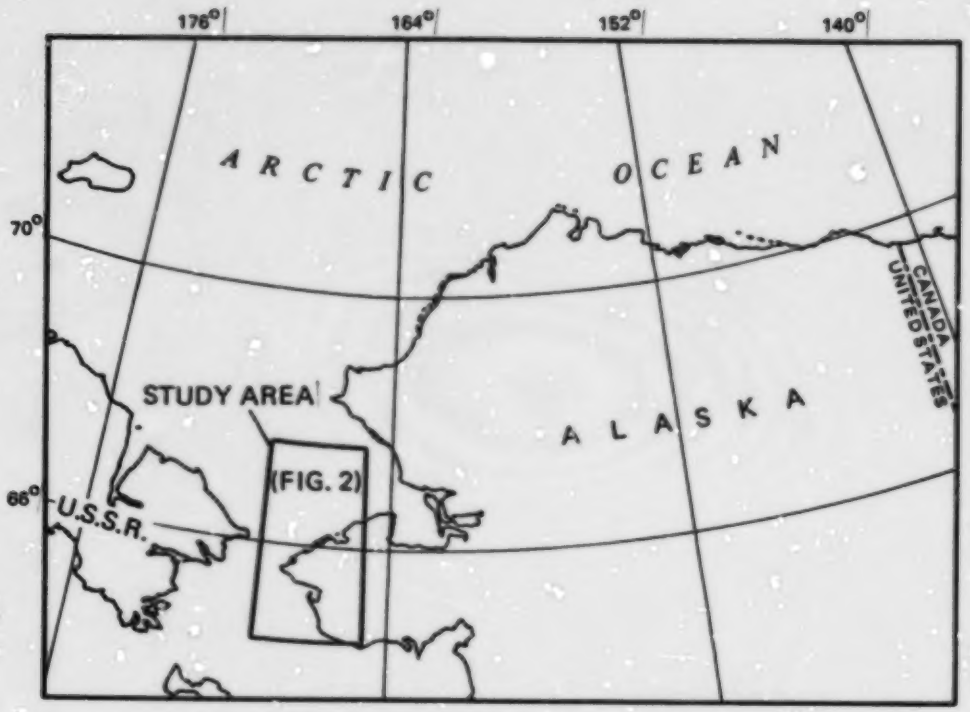

FIGURE 1: Index map showing location of trackline map, Figure 2.

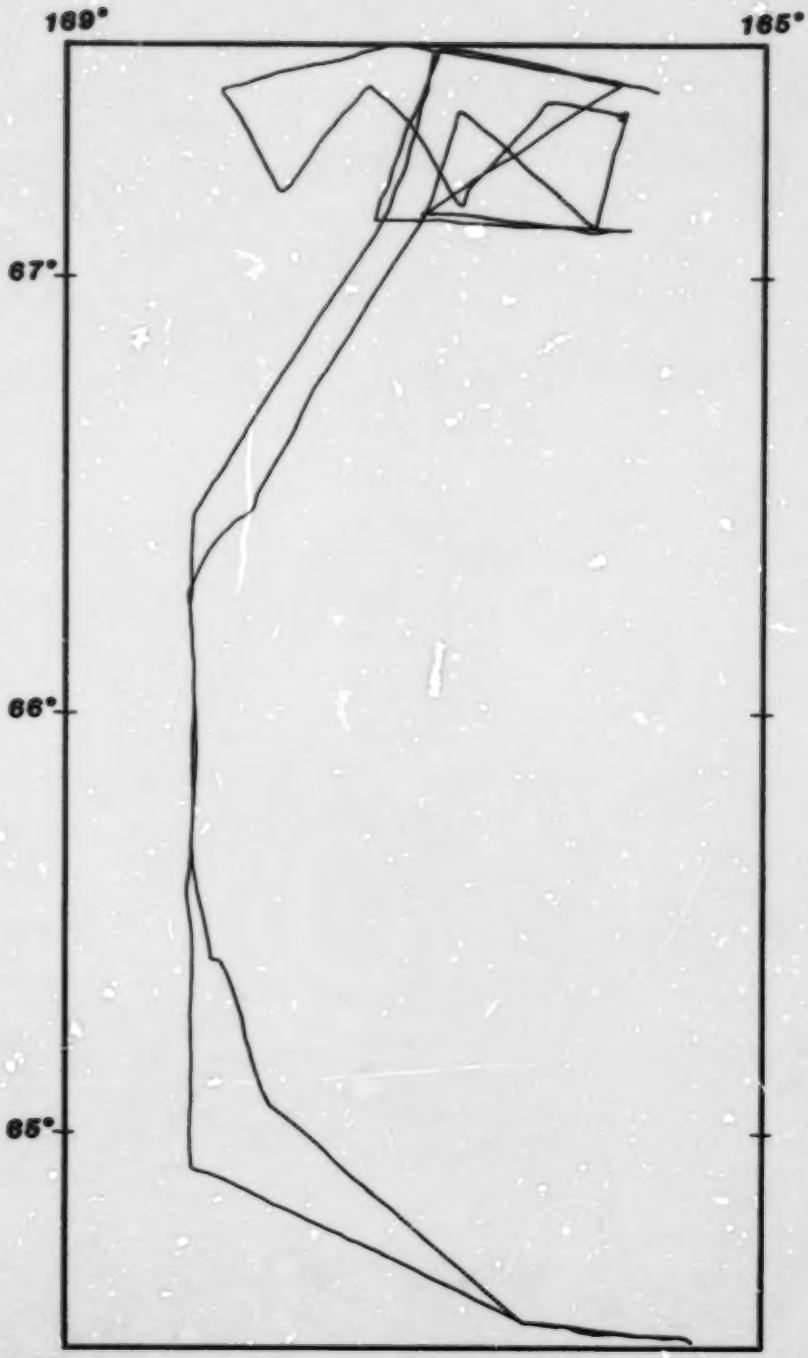

Figure 2.--Location of U.S. Geological Survey R/V S. P. LEE cruise L676AR digital marine gravity data collected in the southern Chukchi Sea in 1976.